



(11) **EP 2 200 521 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**14.12.2011 Bulletin 2011/50**

(21) Application number: **08806346.6**

(22) Date of filing: **19.09.2008**

(51) Int Cl.:  
**A61B 17/15 (2006.01)**

(86) International application number:  
**PCT/GB2008/003191**

(87) International publication number:  
**WO 2009/037479 (26.03.2009 Gazette 2009/13)**

(54) **ADJUSTABLE SURGICAL INSTRUMENT**  
**VERSTELLBARES CHIRURGISCHES INSTRUMENT**  
**INSTRUMENT CHIRURGICAL RÉGLABLE**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT  
RO SE SI SK TR**

(30) Priority: **21.09.2007 GB 0718418**

(43) Date of publication of application:  
**30.06.2010 Bulletin 2010/26**

(73) Proprietor: **Depuy International Ltd**  
**Beeston, Leeds LS11 8DT (GB)**

(72) Inventors:  
• **KECMAN, Maja**  
**London E2 7LJ (GB)**

• **STROUX, Lisa**  
**69120 Heidelberg (DE)**

(74) Representative: **Alton, Andrew**  
**Urquhart-Dykes & Lord LLP**  
**Tower North Central**  
**Merrion Way**  
**Leeds LS2 8PA (GB)**

(56) References cited:  
**EP-A- 0 551 572 GB-A- 2 398 011**  
**US-A1- 2006 235 420 US-A1- 2006 241 639**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

**EP 2 200 521 B1**

## Description

**[0001]** The present invention relates to a surgical instrument, and in particular to an alignment guide having angular adjustment.

**[0002]** Various instruments and devices are used during orthopaedic arthroplasty procedures, such as, *e.g.*, a knee arthroplasty procedure, to assist and guide the positioning of various instruments and devices used during the procedure. For example, Figure 1 shows a side view of a prior art external tibial alignment guide 10 attached to the lower leg of a patient which can be used during a knee arthroplasty procedure. The alignment guide 10 is used to position a tibial cutting block 12 against the tibial tubercle to perform a proximal tibial cut. The alignment guide includes an ankle clamp 14 by which the guide 10 is fixed distally to the patient's lower leg 16. The ankle clamp includes a block and a pair of clamps which engage around the ankle. The cutting block is attached to a telescopically extendable support member 18. The support 18 provides an external alignment guide by which the attached cutting block can be positioned and aligned relative to the longitudinal, inferior-superior axis of the tibia. That is, the support member can be aligned with the axis of the tibia.

**[0003]** The tibial resection position can be set using a stylus in combination with the cutting block 12 and once the height is selected, the cutting block can be pinned in place and the tibial cut performed.

**[0004]** However, only the height of the cutting block can be adjusted. Therefore it is not possible to otherwise alter the position of the cutting block so as to make a cut at a desired or planned position.

**[0005]** GB-2398011 describes an alignment device for use in orthopaedic surgery on a patient's knee. The device includes first and second elongate members which are pivotally connected. The device includes a brace attached to the first member by which it can be secured to the ankle of a patient. The device is extensible as the first member is hollow and slidably receives an inner member. A table for a cutting block is attached to the second member by a shaft. As the cutting block extends away from the pivot point where the first and second members are attached, the cutting block moves in an arc when the second member is pivoted relative to the first member.

**[0006]** US 2006/0235420 describes a fluoroscopic alignment guide including a cutting block mounted on a telescopic connecting portion which allows the length of the guide to be changed. A distal end of the connecting portion includes an opening receiving a rod attached to a body and which can slide in the opening. The rod is generally perpendicular to the longitudinal axis of the connecting portion guide and can be used to set the anterior-posterior position of the distal portion of the guide. The rod can also be curved to allow the assembly to pivot about the proximal portion of the guide.

**[0007]** US 2006/0241639 describes a unicondylar

knee instrument which includes three telescopically sliding sections having a pivoting tibia anchor at a proximal end near a resection guide attached to the top sliding section. A bottom sliding section is attached to an ankle clamp by a connecting rod which can slide within a horizontal passage in the bottom section in the anterior-posterior direction.

**[0008]** Therefore, there is a need for a more flexible alignment guide with greater adjustability.

**[0009]** According to a first aspect of the present invention, there is provided a surgical instrument, comprising: an alignment guide having a first part including a distal end and a second part having a proximal end, and wherein the first part is attached to the second part by a pivot mechanism so that the first part can be tilted relative to the second part and wherein the pivot mechanism can be slid along a longitudinal axis of the second part to alter the overall length of the instrument; a brace attached toward the proximal end of the alignment guide for attaching the instrument to a limb of a patient; and a component attached toward the distal end of the alignment guide, characterised in that the pivot mechanism is configured so that tilting the first part does not substantially change the separation between the component and the brace and wherein the first part includes a hollow region extending along a portion of the length of the first part and which can receive at least a portion of the second part, and wherein a rearward side of the first part includes an elongate aperture by which the portion of the second part can be released from the first part when the first part is tilted relative to the second part.

**[0010]** Hence, the instrument of the invention provides greater adjustability as the alignment guide can be tilted to position the component at a preferred position relative to a part of the limb of a patient. The pivot mechanism is configured so that tilting the first part does not substantially change the separation between the component and the brace. Hence, it is not necessary to adjust the length of the instrument after the alignment guide has been tilted. The extra length of the second part which allows the overall length of the instrument to be extended does not interfere with allowing the first part to be pivoted.

**[0011]** The pivot mechanism can include a curved member. The separation between the position of the curved member and the position of a part of the component can have a length substantially the same as the radius of curvature of the curved member. Hence, in this way, the centre of pivoting is provided in a preferred part of the component so that the height of the component does not substantially alter as the part is tilted.

**[0012]** The pivot mechanism can include a sleeve attached to the first portion. The sleeve can be slidably mounted on the curved member.

**[0013]** The pivot mechanism can include a clamp to hold the pivot mechanism at a particular tilt angle.

**[0014]** The pivot mechanism can include a scale which can display a current degree of tilt of the first part of the instrument.

**[0015]** The brace can project outwardly toward a rearward side of the instrument. The pivot mechanism can project outwardly toward a forward side of the instrument in a generally opposite direction to the brace. By placing the pivot mechanism on a generally opposite side of the instrument to the brace, more space is available for accepting the pivot mechanism. It is also easier to operate the pivot mechanism as the patient's limb will not interfere.

**[0016]** The instrument can further include a base. The proximal end of the alignment guide can be slidably mounted on the base to allow the lateral position of the alignment guide to be adjusted relative to the brace. Hence, the position of the alignment guide in a medial-lateral direction of the patient can be adjusted or fine tuned.

**[0017]** A method of use or operation of the instrument is described in detail below.

**[0018]** An embodiment of the invention will now be described, by way of example only, and with reference to the accompanying drawings, in which:

Figure 1 shows a side view of a prior art external tibial alignment guide;

Figure 2 shows a perspective view of an alignment guide including the invention;

Figure 3 shows a side elevation of the alignment guide shown in Figure 2; and

Figure 4 shows an exploded perspective view of the alignment guide shown in Figure 2.

**[0019]** Similar items in different Figures share common reference numerals unless indicated otherwise.

**[0020]** Figure 2 shows a perspective view of an instrument 20 according to an embodiment of the present invention. Figure 3 shows a side view of instrument 20 and Figure 4 shows a perspective view of the exploded instrument, illustrating its constituent parts.

**[0021]** The instrument 20 generally includes a brace 30 toward a proximal end of the instrument for attaching the instrument to a patient as will be described in greater detail below. A component 40 is attached to a distal end of the instrument 20 and in the embodiment illustrated the component is in the form of a cutting guide. Instrument 20 also includes a further component 50 through which the cutting guide and brace are attached at respective ends. In the embodiment illustrated, the further component 50 is an external alignment guide. The alignment guide 50 includes a pivot mechanism 60 which allows a first, top portion of the alignment guide to pivot relative to a second, lower part of the alignment guide as will be described in greater detail below.

**[0022]** Brace 30 is attached to a base member 80 by a snap-fit mechanism which allows the brace to be releasably attached to the instrument. Base 80 has a generally planar member 82 extending from a rearward portion and presenting a curved edge 84. The shape and dimensions of member 82 are chosen to allow curved

edge 84 to abut against a portion of the surface of the shin of a patient during use of the instrument. Base 80 includes a groove 86 and a curved trough 88 extending there across in a generally lateral or transverse direction.

**[0023]** The lower part 56 or portion of the alignment guide component 50 includes a foot portion 58 having a generally U-shaped construction and adapted to engage with base 80 with rib 59 engaging trough 86 to allow sliding translation relative to base 80. A clamp assembly 98 includes first and second members 62, 64 and spring 66 which are attached to foot 58 by a metal pin and which can engage with trough 88 in use to prevent sliding.

**[0024]** Lower part 56 of the alignment guide includes a solid elongate member 68 extending from the foot 58 having a generally rectangular shape with a pair of opposed flat sides and a pair of opposed curved sides.

**[0025]** A first part 70 of the pivot mechanism 60 includes a generally hollow support 72 with a curved member 74 extending away therefrom. Curved member 74 bears a plurality of angular indicia 76 by an uppermost surface thereof. The first part 70 of the pivot mechanism includes a clip assembly 78 toward a lower end thereof. The clip assembly includes a generally hollow housing 77 having an aperture in a lower surface thereof and a clip plate 79 including a similar aperture. A spring component is also provided within the clip mechanism.

**[0026]** The member 68 of the lower portion 56 of the alignment guide passes through the apertures and hollow portions of the first part of the pivot assembly. With the clip plate 79 depressed against the action of the spring, the pivot assembly can be translated along the longitudinal axis of the member 68 to provide adjustment of the overall height of the instrument. The spring member acts against clip plate 79 to trap member 68 against the edges of the aperture in the clip plate to prevent translation and hence lock the height of the instrument.

**[0027]** The pivot assembly 60 includes a second part 90 provided toward an end of the second part 54 of the alignment guide. The second part of the pivot assembly 90 is in the form of a rounded, curved sleeve 92 having projections 94 on an inner portion thereof to mate with corresponding recesses in the curved member 74: An aperture 96 is provided in an upper surface enabling a one of the angular indicia 76 to be displayed, depending on the current position of the sleeve 92 along curved member 73. A clamp assembly 98 is also provided including first and second clamp drawers 100, 102 and a spring 104. Clamp assembly 98 is attached to sleeve 92 by a pin passing through the clamp drawers 100, 102 and into receiving apertures of the sleeve 92. An end stop plate 106 is also provided attached to a free end of the curve member 74 and sized to prevent free end of curve member 74 escaping from sleeve 92.

**[0028]** The second upper part 54 of the alignment guide has a generally circular cylindrical construction including a central aperture 110 running along its entire length. The aperture is shaped and dimensioned to receive member 68 so that upper part 54 can slide along

the longitudinal axis of member 68. An upper region 112 has a closed cylindrical form while a lower region 114 has an open rear portion, as illustrated best in Figure 3, having a generally C or U-shaped cross-section. The open portion is shaped in dimensions to allow member 68 to escape from within upper part 54 when upper part 54 is tilted relative to lower part 56.

**[0029]** Cutting block 40 is attached to the distal end of the alignment guide 50 by a sprung clip 120 attached by a mail connector to which engages in the aperture 110 of upper part 54. Spring clip 120 allows various different components to be selectively attach to the instrument. In the illustrated embodiment the component is a cutting block 40 suitable for making a tibial cut during a knee arthroplasty procedure. Cutting block 40 includes a slot 42 passing through a generally plate-like curved upper portion 44 attached to a main body 46. Body 46 includes a plurality of coals for accepting a drill-bit to allow holes to be drilled in the patient's bone in use to accept pins for attaching the cutting guide 40 to the patient.

**[0030]** The curved member 64 of the pivot mechanism 60 has a radius of curvature centred on a point in the cutting block. Owing to this geometry, when the sleeve 92 is slid along curved member 74, the upper part 54 of the alignment guide tilts relative to the lower part 56, but the overall length of the instrument does not change, that is the height of at least a portion of the cutting block 40 above the brace does not significantly increase or decrease as the upper part of the alignment guide is effectively pivoting about a point located in the component. Therefore, the angle of the component 40 relative to the remainder of the instrument can be altered, without changing the overall length or height of the instrument. Therefore, in use, a surgeon can alter the angle of the cutting block 40 without having to then re-adjust the overall height of the instrument. The pivot mechanism is provided and configured so as to be able to use an arc (and therefore a proper angle) to set the posterior slope rather than a line (as occurs for prior art device) and to have a proximal pivoting reference to set the posterior slope which is independent of tibial length.

**[0031]** Instrument 20 includes brace 30 by which the instrument can be attached to and support on a patient. Although the embodiment illustrating the invention includes an alignment guide, it will be appreciated that in other embodiments, the brace 30 may be supporting other types of instruments or components relative to a patient's body. In this exemplary embodiment, instrument 20 is an external alignment guide including a tibial cutting block 40. The alignment guide 50 allows the cutting block to be aligned relative to the longitudinal axis of the tibia and also allows the height and angular position of the cutting block 40 to be adjusted to allow a tibial cut to be performed at a planned or preferred position and / or orientation.

**[0032]** The brace 30 includes a first 32 and a second 34 member on generally opposite sides of the brace 30. The members 32, 34 are attached to a common central

or bridge portion 36 including an aperture part of a snap-fit fastener by which the brace 30 can be releasably attached to a co-operating part of base 80. Each member 32, 34 is in the form of a loop with a open hole or aperture defined thereby. The loop is formed from a ribbon or band material. The band material has a complex shape and curves in a number of directions. Firstly, the band of material is curved because its transverse dimension provide some spring force. Further, the band of material is curved to define a generally concave formation. Each loop is formed to define a generally pear or tear-dropped aperture 38 which is sized and shaped to accept a respective malleolus of the patient.

**[0033]** The entire brace component 30 is made from a resilient plastics material so that the brace is generally springy so that it can be push-fit onto the ankle of a patient so that the members 32, 34 encircle the malleoli and the resilient material of the brace causes the brace to securely grip the ankle of the patient and hold the instrument in place.

**[0034]** The brace can be made from a suitable plastics material such as various types of polymers, including polyurethane, ABS, Nylon or polypropylene. The plastics materials are selected to have a suitable elasticity and flexibility to be attached to and grip a range of different sizes of ankle in use. In other embodiments, the brace could be made from any suitable springy material, such as metals, alloys, composite materials, high yield stress metals, and hybrid metal and plastics.

**[0035]** As described above, the shapes of the members are adapted or configured so as to ensure that they wrap around the malleoli in use. The apertures in the brace allow the surgeon to feel the malleoli so that he is reassured of the correct positioning of the instrument. Dimensions of the apertures are designed to allow the brace to fit for around 95% of malleoli found generally in the population.

**[0036]** The shape of the malleoli together with the particular materials used are selected to provide the necessary fixation or grip force about the ankle so that the instrument can be push-fit attached to a patient. The instrument is at least partially self-locating as the spring force exerted by the resilient material of the brace causes the brace to lock onto the ankle in a generally unique position.

**[0037]** It will be appreciated that in other applications of the invention, the members will have different shapes and dimensions in order to capture other bony parts of features to which the brace is to be attached.

**[0038]** Also, the material of the brace is selected to provide sufficient flexibility and resilience of the brace to allow it to fit around 95% of ankle sizes present in the population.

**[0039]** The brace is asymmetric as the first and second members have different shapes and sizes to take into account the slightly differing anatomy of the malleoli on the left and right sides of the ankle. The instrument can be used on left hand and right hand ankles simply by

removing the brace from the instrument, rotating the brace through 180 degrees and re-attaching the brace to the instrument. Therefore, a single instrument can be used on both the left hand side and right hand side ankles of a patient. Further, the brace is designed to automatically position the alignment guide with the tibia of a typical patient. Typically, the tibia is positioned approximately 60% from the lateral side and 40% from the medial side of the leg. Therefore, the brace is designed so that the alignment guide 50 is attached to the brace in a position approximately 60% from the lateral side and 40% from the medial side of the brace (wherein the medial and lateral sides of the brace are defined by the different shaped and sized members to accept the slightly different anatomy of the medial and lateral side malleolus). Hence, when the instrument is initially attached to a patient, the brace is automatically positioned at a 60/40 ratio in the medial-lateral direction of the patient so that the alignment guide is automatically approximately aligned with the tibia.

**[0040]** In other embodiments, the 60%-40% (or any other ratio) positioning of the brace can be also achieved by using two different materials for the same component. For example the brace can be made of two materials having different stiffness or mechanical properties, one for the medial and the other for the lateral portion. In this way, the brace can be self centring for any given ankle size.

**[0041]** The remainder of the parts of the instrument can be made of various plastics materials, such as ABS, polypropylene, polyurethane, polyethylene, polycarbonate and nylon, except for various spring and pin parts of the clamps and clips which are made of suitable biocompatible metals. Further, the cutting guide 40 is typically made of a suitable biocompatible metal, such as stainless steel or similar.

**[0042]** Use of the instrument will now be described.

**[0043]** Initially, the surgeon brings the instrument generally into alignment with the patient's lower leg, by generally aligning the longitudinal axis of the instrument with the longitudinal axis, i.e., in the inferior-superior direction, of the patient's lower leg. The brace is positioned anterior to and over the ankle, near to the malleoli. The surgeon can check whether the brace is in the correct orientation for the patient's ankle, and if not, then the brace can be removed, rotated by 180° and then re-attached to the instrument. The brace is pushed over the patient's ankle and the brace deforms to allow the ankle to enter into the mouth of the generally re-entrant or C-shaped cross sectional space defined by the members. The leading curved edges of the members rides over the malleoli until the brace is pushed sufficiently onto the ankle for the members to pass over to the posterior side of the malleoli and encircle the malleoli. Curved edge 84 of member 82 will be brought into abutment with a part of the front of the shin of the patient, so as to hold the alignment guide at a preferred position away from the tibia.

**[0044]** As the brace is made of a resilient material, the

brace will automatically clamp about and securely grip the ankle. Also, as the holes in the members are shaped to accept the bony parts of the malleoli the brace will automatically settled about the malleoli and hence self-locate itself in a particular position. The grip exerted by the resilient material of the brace will also prevent the brace from moving significantly, unless sufficient force is applied to remove the brace by pulling it away from the ankle in a generally anterior direction. Further, as the alignment guide is located 60:40 along the width of the brace, the alignment guide is likely to be largely aligned with the middle of the tibia, absent any abnormal anatomy.

**[0045]** The surgeon, can then operate the base clamp 60 and slide the alignment guide in the medial-lateral direction, if required, in order to fine tune the positioning of the guide 50. The surgeon can also operate clip 79 in order to extend or reduce the length of the guide, if required, so as to position the cutting block at the correct height relative to the distal part of the tibia for making the tibial cut. The surgeon can also tilt the upper part of the alignment guide to change the cutting angle of the cutting block by operating pivot mechanism clamp 98, and pushing the upper part of the guide and cutting block toward the tibia. The surgeon can view the current degree of tilt displayed through aperture 96 to determine when the desired degree of tilt has been achieved. As the curved member has a radius of curvature which terminates generally in the upper plate of cutting block, the overall length of the guide, that is the separation between the cutting guide slot of the cutting block and the brace does not substantially change, when the upper part is tilted and so the height of the cutting block relative to the tibia does not need changing.

**[0046]** The cutting block can then be pinned in place. The spring clip 120 can then be operated to release the cutting block and the surgeon can pull on the instrument to release the brace from around the malleoli. Hence, the surgeon can more easily attach and release the instrument using the brace. The instrument also provides greater adjustability and ease of use.

## Claims

1. A surgical instrument (20), comprising:

an alignment guide having a first part (54) including a distal end and a second part (56) having a proximal end, and wherein the first part is attached to the second part by a pivot mechanism (60) so that the first part can be tilted relative to the second part and wherein the pivot mechanism (60) can be slid along a longitudinal axis of the second part to alter the overall length of the instrument;

a brace (30) attached toward the proximal end of the alignment guide for attaching the instru-

- ment to a limb of a patient; and  
a component (40) attached toward the distal end  
of the alignment guide, **characterised in that**  
the pivot mechanism is configured so that tilting  
the first part does not substantially change the  
separation between the component and the  
brace and wherein the first part (54) includes a  
hollow region (114) extending along a portion of  
the length of the first part and which can receive  
at least a portion (68) of the second part (56),  
and wherein a rearward side of the first part (54)  
includes an elongate aperture by which the por-  
tion (68) of the second part can be released from  
the first part (54) when the first part is tilted re-  
lative to the second part (56).
2. An instrument as claimed in claim 1, wherein the  
pivot mechanism (60) includes a curved member  
(74) and wherein the separation between the posi-  
tion of the curved member (74) and a point in the  
component (40) has a length substantially the same  
as the radius of curvature of the curved portion.
  3. An instrument as claimed in claim 2, wherein the  
pivot mechanism (60) includes a sleeve (92) at-  
tached to the first portion and wherein the sleeve is  
slidably mounted on the curved member (74).
  4. An instrument as claimed in claim 1, wherein the  
pivot mechanism (60) includes a clamp (98) to hold  
the pivot mechanism at a particular tilt angle.
  5. An instrument as claimed in claim 1, wherein the  
pivot mechanism (60) includes a scale (76) which  
can display a current degree of tilt of the first part of  
the instrument.
  6. An instrument as claimed in claim 1, wherein the  
brace (30) projects outwardly toward a rearward side  
of the instrument and the pivot mechanism (60)  
projects outwardly toward a forward side of the in-  
strument in a generally opposite direction to the  
brace.
  7. An instrument as claimed in claim 1, and further in-  
cluding a base (80) wherein the proximal end of the  
alignment guide is slidably mounted on the base to  
allow the lateral position of the alignment guide to  
be adjusted relative to the brace (30).
  8. An instrument as claimed in claim 2, wherein the  
component (40) is a cutting block having a cutting  
slot (42) and the instrument is configured so that the  
first part (54) pivots about a point in the cutting slot.

## Patentansprüche

1. Chirurgisches Instrument (20), umfassend:

eine Ausrichthilfe, die einen ersten Teil (54) ein-  
schließlich eines distalen Endes und einen zwei-  
ten Teil (56) mit einem proximalen Ende auf-  
weist, wobei der erste Teil mit dem zweiten Teil  
über einen Schwenkmechanismus (60) verbun-  
den ist, so dass der erste Teil gegenüber dem  
zweiten Teil geneigt werden kann, und wobei  
der Schwenkmechanismus (60) entlang einer  
Längsachse des zweiten Teils gleitend bewegt  
werden kann, um die Gesamtlänge des Instru-  
ments zu verändern;  
eine Bandage (30), die in Richtung des proxi-  
malen Endes der Ausrichtführung zum Anbrin-  
gen des Instruments an einem Körperglied ei-  
nes Patienten angebracht ist; und  
eine Komponente (40), die in Richtung des di-  
stalen Endes der Ausrichtführung angebracht  
ist, **dadurch gekennzeichnet, dass** der  
Schwenkmechanismus so konfiguriert ist, dass  
ein Neigen des ersten Teils den Abstand zw-  
ischen der Komponente und der Klemme nicht  
wesentlich verändert, und dass der erste Teil  
(54) einen hohlen Bereich (114) aufweist, der  
sich entlang eines Längsabschnitts des ersten  
Teils erstreckt und der wenigstens einen Ab-  
schnitt (68) des zweiten Teils (56) aufnehmen  
kann, und dass eine rückwärtige Seite des er-  
sten Teils (54) eine längliche Öffnung aufweist,  
durch die der Abschnitt (68) des zweiten Teils  
von dem ersten Teil (54) gelöst werden kann,  
wenn der erste Teil gegenüber dem zweiten Teil  
(56) geneigt ist.

2. Instrument nach Anspruch 1, wobei der Schwenk-  
mechanismus (60) ein gebogenes Element (74) auf-  
weist, und wobei der Abstand zwischen der Position  
des gebogenen Elements (74) und einem Punkt in  
der Komponente (40) eine Länge aufweist, die im  
Wesentlichen die Gleiche ist wie der Krümmungsra-  
dius des gebogenen Elements.
3. Instrument nach Anspruch 2, wobei der Schwenk-  
mechanismus (60) eine Buchse (92) aufweist, die  
an dem ersten Abschnitt befestigt ist, und wobei die  
Buchse gleitfähig an dem gebogenen Element (74)  
befestigt ist.
4. Instrument nach Anspruch 1, wobei der Schwenk-  
mechanismus (60) eine Klammer (98) zum Halten  
des Schwenkmechanismus in einem bestimmten  
Neigungswinkel aufweist.
5. Instrument nach Anspruch 1, wobei der Schwenk-  
mechanismus (60) eine Skala (76) aufweist, die ei-

nen gegenwärtigen Neigungsgrad des ersten Teils des Instruments anzeigen kann.

6. Instrument nach Anspruch 1, wobei die Bandage (30) nach außen in Richtung einer rückwärtigen Seite des Instruments hervorsteht und der Schwenkmechanismus (60) nach außen in Richtung einer Vorderseite des Instruments in einer der Bandage im Allgemeinen entgegengesetzten Richtung hervorsteht.
7. Instrument nach Anspruch 1, welches ferner eine Basis (80) aufweist, wobei das proximale Ende der Ausrichtführung gleitfähig an der Basis befestigt ist, um zu ermöglichen, dass die laterale Position der Ausrichtführung gegenüber der Bandage (30) angepasst werden kann.
8. Instrument nach Anspruch 2, wobei die Komponente (40) ein Schneideblock ist, der einen Schneideschlitz (42) aufweist, und wobei das Instrument so konfiguriert ist, dass der erste Teil (54) um einen Punkt in dem Schneideschlitz schwenkt.

#### Revendications

1. Instrument chirurgical (20) comprenant :

- ✓ un guide d'alignement ayant une première partie (54) comprenant une extrémité distale et une deuxième partie (56) ayant une extrémité proximale et dans lequel la première partie est fixée à la deuxième partie par un mécanisme de pivot (60) de sorte que la première partie peut être inclinée par rapport à la deuxième partie et dans lequel le mécanisme de pivot (60) peut coulisser le long d'un axe longitudinal de la deuxième partie afin de modifier la longueur globale de l'instrument ;
- ✓ une attache (30) fixée vers l'extrémité proximale du guide d'alignement pour fixer l'instrument à un membre d'un patient ; et
- ✓ un composant (40) fixé vers l'extrémité distale du guide d'alignement, **caractérisé en ce que** le mécanisme de pivot est configuré de sorte que le fait d'incliner la première partie ne change sensiblement pas la séparation entre le composant et l'attache et dans lequel la première partie (54) comprend une région creuse (114) s'étendant le long d'une partie de la longueur de la première partie et qui peut recevoir au moins une partie (68) de la deuxième partie (56) et dans lequel un côté arrière de la première partie (54) comprend une ouverture allongée par laquelle la partie (68) de la deuxième partie peut être libérée de la première partie (54) lorsque la première partie est inclinée par rapport à la

deuxième partie (56).

2. Instrument selon la revendication 1, dans lequel le mécanisme de pivot (60) comprend un élément incurvé (74) et dans lequel la séparation entre la position de l'élément incurvé (74) et un point dans le composant (40) a sensiblement la même longueur que le rayon de courbure de la partie incurvée.
3. Instrument selon la revendication 2, dans lequel un mécanisme de pivot (60) comprend un manchon (92) fixé à la première partie et dans lequel le manchon est monté de manière coulissante sur l'élément incurvé (74).
4. Instrument selon la revendication 1, dans lequel le mécanisme de pivot (60) comprend une pince (98) pour maintenir le mécanisme de pivot selon un angle d'inclinaison particulier.
5. Instrument selon la revendication 1, dans lequel le mécanisme de pivot (60) comprend une échelle (76) qui peut afficher un degré courant d'inclinaison de la première partie de l'instrument.
6. Instrument selon la revendication 1, dans lequel l'attache (30) fait saillie vers l'extérieur, vers un côté arrière de l'instrument et le mécanisme de pivot (60) fait saillie vers l'extérieur vers un côté avant de l'instrument dans une direction généralement opposée à l'attache.
7. Instrument selon la revendication 1, et comprenant en outre une base (80), dans lequel l'extrémité proximale du guide d'alignement est montée de manière coulissante sur la base pour permettre l'ajustement de la position latérale du guide d'alignement par rapport à l'attache (30).
8. Instrument selon la revendication 2, dans lequel le composant (40) est un bloc de coupe ayant une fente de coupe (42) et l'instrument est configuré de sorte que la première partie (54) pivote autour d'un point dans la fente de coupe.

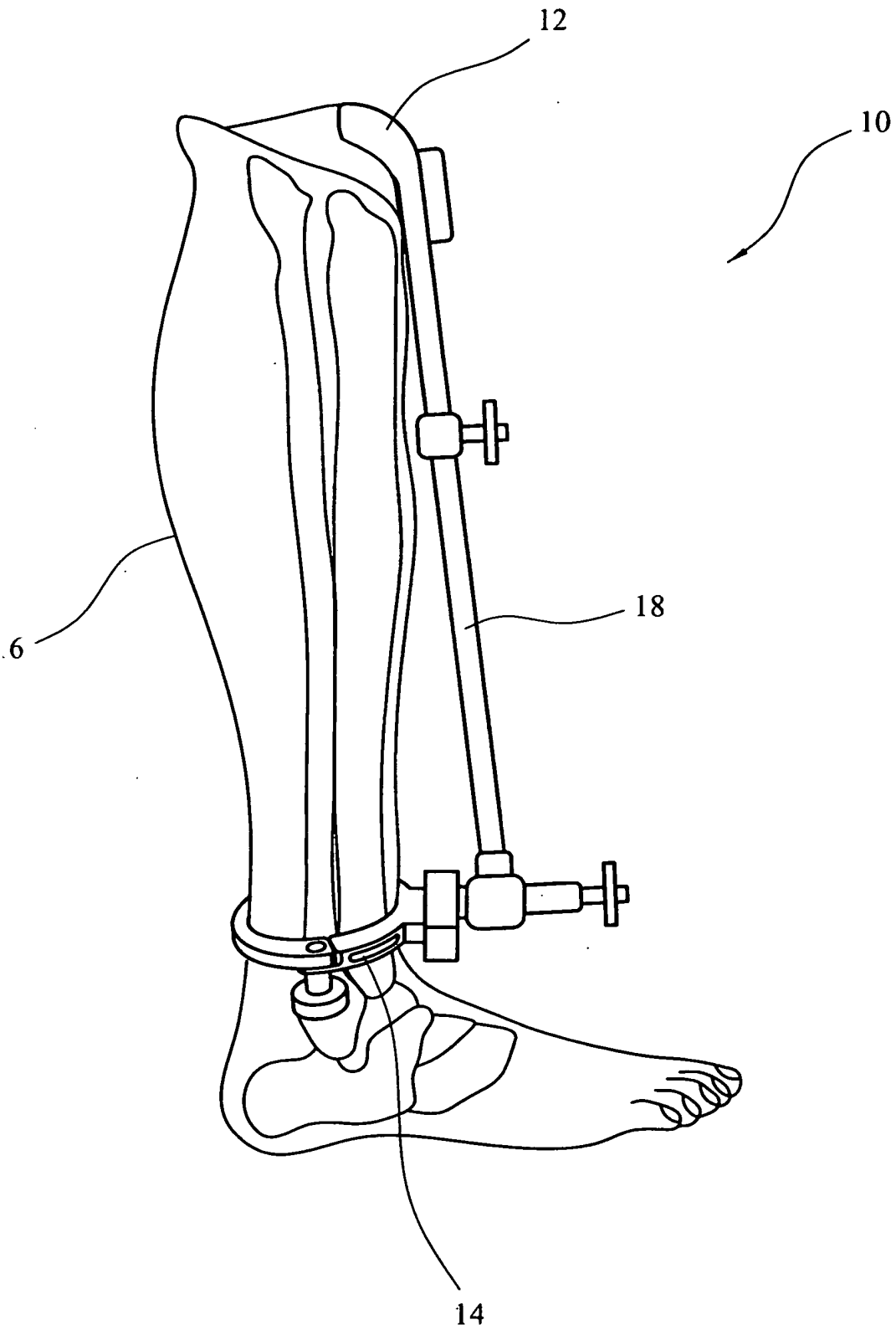


FIG. 1  
PRIOR ART

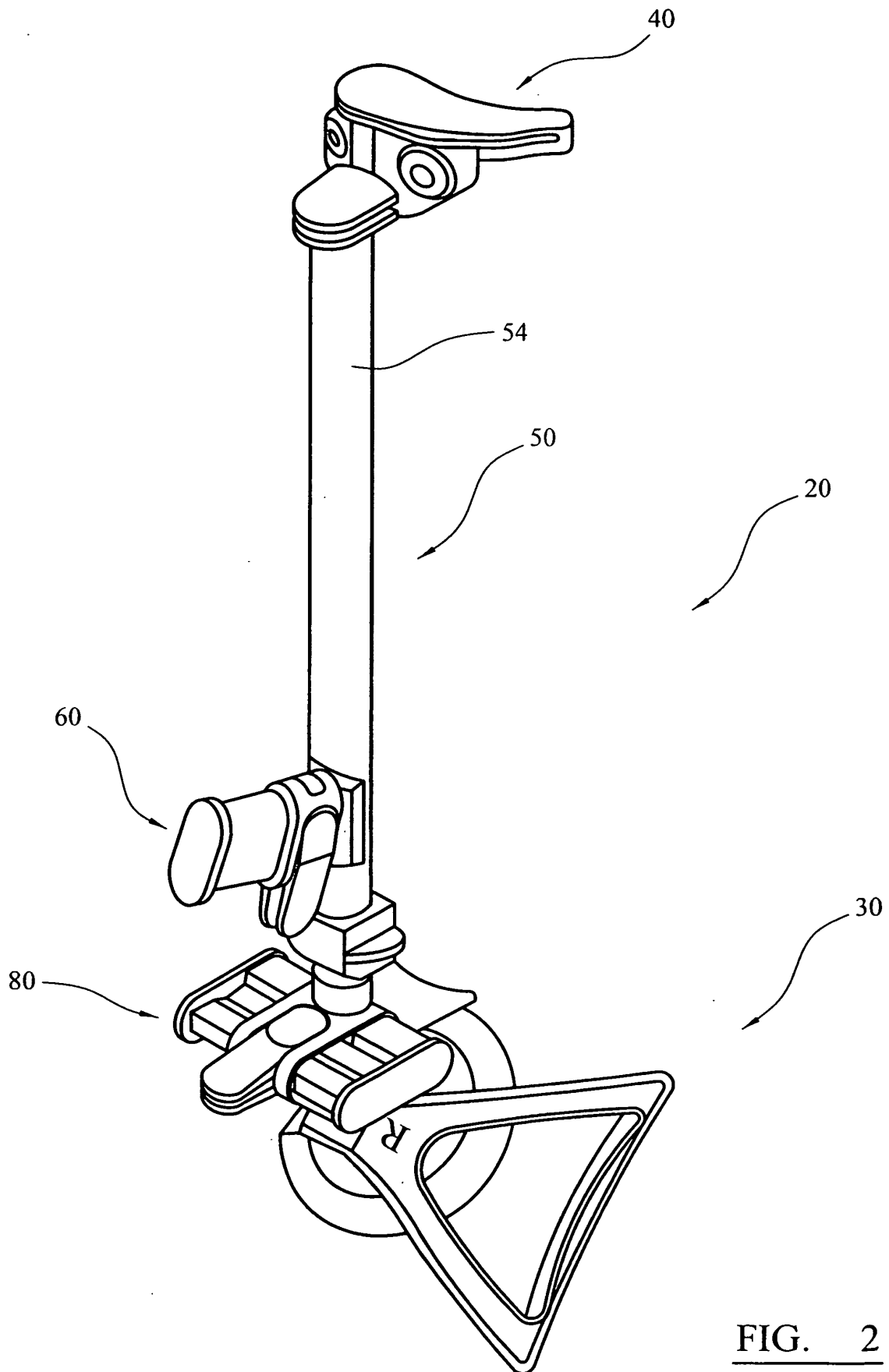


FIG. 2

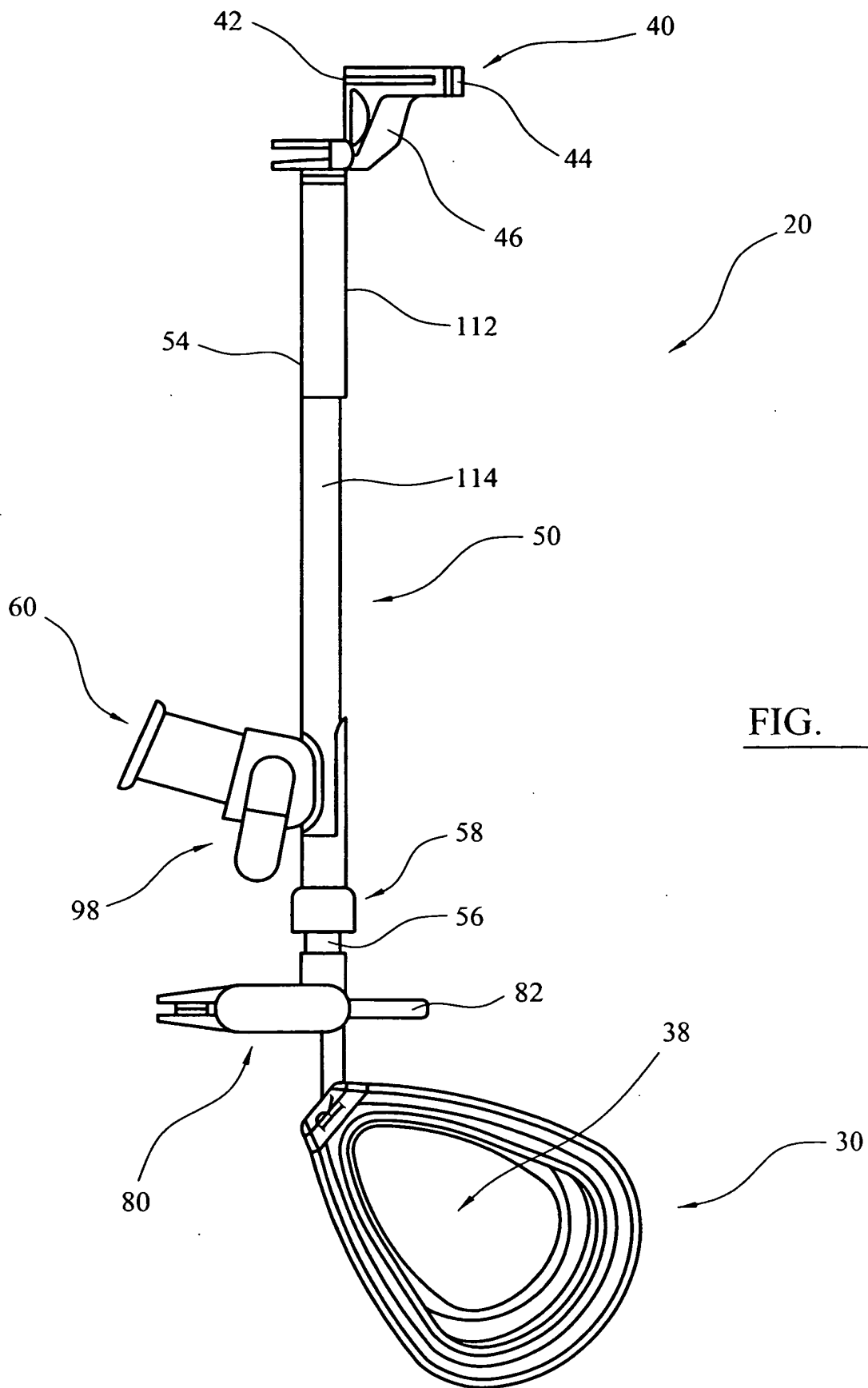
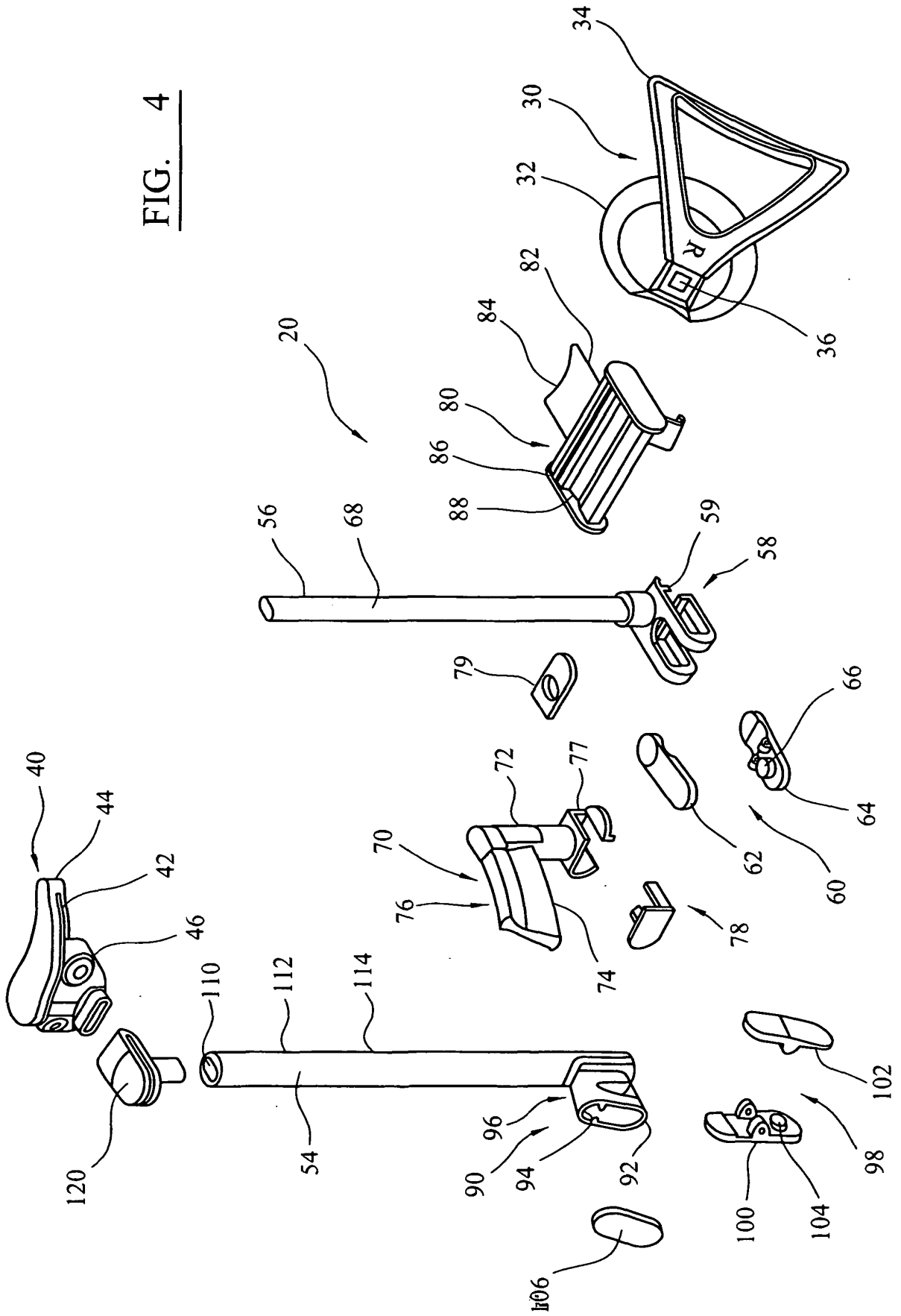


FIG. 4



**REFERENCES CITED IN THE DESCRIPTION**

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

**Patent documents cited in the description**

- GB 2398011 A [0005]
- US 20060235420 A [0006]
- US 20060241639 A [0007]